

**Before the**  
**PUBLIC SERVICE COMMISSION**  
**OF SOUTH CAROLINA**

**Docket No. 2009-411-G**

**ENERGY EFFICIENCY PROGRAM REPORT**

**June 15, 2015**



# **Piedmont Natural Gas Company, Inc. Energy Efficiency Programs South Carolina**

## **Docket No. 2009-411-G**

### **INTRODUCTION**

Piedmont Natural Gas Company, Inc. (“Piedmont” or the “Company”) respectfully submits this report on the effectiveness of the Company’s energy efficiency programs pursuant to the Public Service Commission of South Carolina’s (“Commission”) May 27, 2010, *Order Approving Energy Efficiency Programs* in Docket 2009-411-G, Order No. 2010-390. This report focuses on Piedmont’s energy efficiency programs in effect during the period from April 1, 2014 through March 31, 2015 (Program Year 5).

### **BACKGROUND**

On October 1, 2009, Piedmont filed its Petition for Approval of Energy Efficiency Programs. By a Revised Notice of Filing issued October 15, 2009, the Commission established December 21, 2009 as the deadline for the filing of petitions to intervene and scheduled this matter for hearing on February 11, 2010. On November 12, 2009, Piedmont filed its affidavits that such Notice had been properly published in the appropriate newspapers serving Piedmont's assigned service territory in South Carolina. Further, on December 9, 2009, Piedmont filed a certification of mailing with the Commission certifying that the Notice of Filing and Hearing had been mailed or provided in electronic format to all Piedmont customers in South Carolina.

On December 30, 2009, Piedmont filed the testimony of Steve Lisk supporting the Petition and the proposed Program Procedures. In its Petition, Piedmont submitted for Commission review and approval, the following three natural gas energy efficiency programs:

1. Customer Education Program - a targeted marketing approach within the Piedmont South Carolina service territory to provide customer energy education, efficiency and conservation messages.

2. Low-Income Energy Efficiency Program - designed to provide energy efficiency measures and weatherization assistance to existing Piedmont low-income residential customers.
3. High-Efficiency Equipment Rebate Program – designed to provide rebates to Piedmont's residential and commercial customers who purchase and install qualifying high efficiency natural gas equipment to replace existing natural gas equipment.

On January 27, 2010, Piedmont and the ORS entered into a Settlement Agreement with respect to Piedmont's program filings. As part of the Settlement Agreement, Piedmont and ORS agreed that Piedmont should be authorized to expend and recover from its South Carolina residential and commercial customers an annual cost of \$350,000 for the operation of the three energy efficiency programs. In addition, these programs would be considered experimental in nature and would operate for a period of three years. ORS and Piedmont further agreed that after a period of three years they would jointly or individually submit any proposed modifications to the programs or program expenditures for review and approval of the Commission. Also, as part of the Settlement Agreement, Piedmont agreed to submit to the ORS and the Commission, on an annual basis in conjunction with the Company's Rate Stabilization Act (RSA) process, a request for recovery of Piedmont's Energy Efficiency program costs for the twelve-month period ending March 31st. Finally, the parties agreed that this report would be submitted by June 15th of each year beginning in June, 2011.

On May 27, 2010, the Commission issued its Directive approving Piedmont's Energy Efficiency Programs.

On September 16, 2010, Piedmont requested that the Commission approve a modification to its Residential Low-Income Weatherization Program to allow the use of both the Federal Weatherization Assistance Program standard and the HUD standard in determining whether a residence qualifies as "low-income". This request was approved by the Commission on September 29, 2010.

On December 21, 2010, Piedmont requested that approximately \$25,000 of unexpended funds in the Residential Low-Income Program and approximately \$40,000 of unexpended funds in

the Customer Education Program be reallocated to the High Efficiency Equipment Rebate Program to meet higher than expected demand in the Rebate program. This request was approved by the Commission on January 12, 2011.

On January 3, 2012, Piedmont requested that approximately \$50,000 of unexpended funds in the Residential Low-Income Program and approximately \$38,000 of unexpended funds in the Customer Education Program be reallocated to the High Efficiency Equipment Rebate Program to meet higher than expected demand in the Rebate program. This request was approved by the Commission on January 18, 2012.

On January 16, 2013, Piedmont requested that up to approximately \$50,000 of unexpended funds in the Residential Low-Income Program and up to approximately \$35,000 of unexpended funds in the Customer Education Program be reallocated as needed to the High Efficiency Equipment Rebate Program to meet higher than expected demand in the Rebate program. This request was approved by the Commission on February 13, 2013.

On March 28, 2014, Piedmont requested to revise the allocation of funds among the three programs in a manner that was aligned with the average spending pattern for each EE program. The proposed new funding allocation was the following: Customer Education Program: \$15,000, Residential Low-Income Program: \$115,000, and the High-Efficiency Equipment Rebate Program: \$220,000. Piedmont also requested the flexibility to reallocate up to \$15,000 per program to another program without separately requesting additional approval by the Commission. These requests were approved by the Commission on April 9, 2014.

The Company's approved annual budget for energy efficiency programs in South Carolina is \$350,000 per year and Piedmont's actual expenditures for Program Year 5 were 91.9% of the budgeted annual costs. A summary of Program Year 5 funding is shown in Table 1.



**Table 1 – Program Year 5 Funding**

	<b>Budgeted Annual Costs</b>	<b>Expenditures<sup>A</sup></b>
Customer Education Program	\$15,000	\$24,536
Residential Low-Income Program	\$115,000	\$60,000 <sup>B</sup>
High-Efficiency Equipment Rebate Program	\$220,000	\$236,936
<b>TOTAL</b>	<b>\$350,000</b>	<b>\$321,472</b>

A) Represents program expenses recorded between April 1, 2014 and the end of accounting month March 2015.

B) In addition to the expenditures shown, \$16,936 was reallocated from the Low-Income program to the Equipment Rebate program and \$9,536 was reallocated to the Customer Education program.

## **CUSTOMER EDUCATION PROGRAM**

Piedmont designed and distributed several targeted communication products to promote customer energy education, efficiency and conservation messages. Table 2 shows the Customer Education Program expenditures for Program Year 5.

**Table 2 – Customer Education Program Expenditures in Program Year 5**

	<b>Budgeted Annual Costs</b>	<b>Expenditures<sup>A</sup></b>
Customer Education Program	\$15,000	\$24,536 <sup>B</sup>
<b>TOTAL</b>	<b>\$15,000</b>	<b>\$24,536</b>

A) Represents program expenses recorded between April 1, 2014 and the end of accounting month March 2015.

Table 3 provides a description of each customer education piece that was administered during Program Year 5.<sup>1</sup> A copy of each customer education piece is shown in Exhibit A.

---

<sup>1</sup> In addition to these SC customer education materials, bill inserts were sent out to customers in all Piedmont's service territories. Some of these mailings included recurring annual bill inserts that were not paid for through funds dedicated for the SC Energy Efficiency Program. These bill inserts dealt with Piedmont's energy savings on-line tools, cold weather energy saving tips and saving money with natural gas water heaters.

**Table 3 – Customer Education Communication in Program Year 5**

<b>Communication Form</b>	<b>Date Administered</b>	<b>Message</b>
Newspaper Ad	December 2014	Saving energy during the winter months
Magazine Ad	December 2014	Saving energy during the winter months
Bill Insert	January 2015	Saving energy during the winter months
Newspaper Ad	February 2015	Keeping your home warm
Newspaper Ad	March 2015	Keeping your home warm

For Program Year 6, the Company is continuing to look at ways to promote energy efficiency and conservation messages through marketing materials.

### **RESIDENTIAL LOW-INCOME ENERGY EFFICIENCY PROGRAM**

The primary purpose of this program is to provide energy efficiency measures and weatherization assistance, through a third-party, to low-income residential customers in Piedmont's service territory. The program is intended to create a more energy efficient and comfortable home environment for the customers served. In addition to the actual energy savings, there can be additional benefits to the low-income customer including improved health and safety, and increased comfort.

The target population for this program is low-income customers dwelling in single-family homes that are served under Piedmont's residential rate schedules (Rate Schedules 201 and 221). For the purposes of this program, Piedmont considers a customer to be "low-income" based on guidelines established for the Federal Weatherization Assistance Program or by the United States Department of Housing and Urban Development ("HUD"). When applicable, priority is placed on providing assistance to those eligible elderly individuals with disabilities and eligible families with children.

The primary energy efficiency measures provided to each program participant are based on a comprehensive in-home energy audit. The measures offered and performed for program participants may include:

- Sealing major air leaks in floors and ceilings (penetrations, bypasses, chases)
- Insulating attic, side wall, and/or floors
- Sealing and insulating ducts
- Installing programmable/setback thermostat
- Evaluating, cleaning and tuning heating systems
- Installing general heat waste measures (furnace filters, water heater insulation wrap, piping insulation, water-saving devices, and weather-stripping)

The energy contractor decides, primarily guided by the results of the in-home energy audit, which energy saving measures to install at the participant's home. The energy audit helps the energy contractor determine which energy saving measures would provide the greatest benefit to the participant. Due to safety concerns, a carbon monoxide detector is installed inside the participant's home if one is not currently installed.

Piedmont has worked with two different organizations to administer the Low-Income Program. Piedmont has been able to leverage its funding with these organizations since they were already involved with the weatherization of low-income homes in Piedmont's service territory. Piedmont is working with the Furman University Community Conservation Corps ("Furman CCC") in the Greenville area and with Piedmont Community Actions ("PCA") in Spartanburg and Cherokee counties.

During Program year 1, Piedmont was not able to get started working with these two organizations as quickly as initially anticipated due to filing changes to the program income guidelines, scheduling conflicts and also the time required to complete the contractual agreements. Based on these delays and other program scheduling issues, the funding start dates for the organizations were then further delayed. In addition, sometimes the organizations that administer these low-income weatherization programs have other delays in their own program which then stretches out the length of time for them to complete the leveraged funding provided by Piedmont. As a result, the time period needed to complete the weatherization work can stretch out over multiple program years and also the funding cycles can get staggered between program years.

The Furman CCC is still working from Program Year 5 funding but the work is over 90% completed. Furman CCC did not receive funding for Program Year 5 until July 2014. PCA did not receive funding for Program Year 4 until March 2014 and this was because they were still utilizing Program Year 3 funding as a result of finishing up some of their weatherization efforts directed toward the Federal Weatherization Assistance Program funding. PCA experienced some setbacks in their own weatherization program and as a result they are still utilizing the Program Year 4 funding. Because PCA has not yet completed their Program Year 4 funding, no funding was provided to PCA for the Program Year 5 funding period.

Table 4 summarizes the Low-Income Program expenditures.

**Table 4 – Low-Income Program Expenditures in Program Year 5**

	<b>Estimated Annual Costs</b>	<b>Expenditures<sup>A</sup></b>
Low-Income Program	\$115,000	\$60,000 <sup>B</sup>
<b>TOTAL</b>	<b>\$115,000</b>	<b>\$60,000<sup>B</sup></b>

A) Represents program expenses recorded between April 1, 2014 and the end of accounting month March 2015.

B) In addition to the expenditures shown, \$16,936 was reallocated from the Low-Income program to the Equipment Rebate program and \$9,536 was reallocated to the Customer Education program.

Tables 5 and 6 show the program status (as of May 30, 2015) for each organization and reflects the Program Years 4 and 5.

**Table 5 – Program Year 4 Low-Income Program Summary**

<b>Furman CCC</b>	
<b>Counties Served</b>	Greenville
<b>Funding Status</b>	Program year funding is depleted.

<b>Additional Information</b>	Completed 15 homes through the program. The average age of the homes weatherized was around 50 years old. Some of the work included: energy audits, blower-door testing, installing weather-stripping on doors/windows, installing attic and sidewall insulation, air sealing, reattaching ductwork, air sealing and insulating ductwork, and fixing and installing smoke/CO2 detectors. This included funding for replacement of unsafe items such as replacing unsafe natural gas water heater.
-------------------------------	---

<b>Piedmont Community Actions</b>	
<b>Counties Served</b>	Spartanburg and Cherokee
<b>Funding Status</b>	PCA experienced some setbacks in their own weatherization program and as a result they are still utilizing the Program Year 4 funding.

**Table 6 – Program Year 5 Low-Income Program Summary**

<b>Furman CCC</b>	
<b>Counties Served</b>	Greenville
<b>Funding Status</b>	They have 16 homes that have either been weatherized or are in the process of being weatherized. This program is still in progress but it is over 90% completed.

The summary will be reported in the June 15, 2016 annual report for any programs that are still in progress.

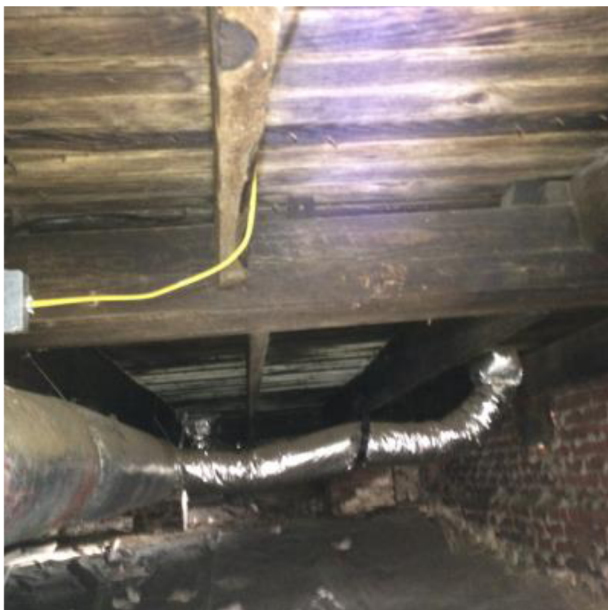
Below are some pictures related to home weatherization work that was done.

**Contractor installing insulation in walls**



The pictures below show an old mill village home that was built in the early 1900's. After the new insulation was installed the homeowner said they could feel the difference and the floors were much warmer.

**No insulation in crawlspace**



**After Insulation added**



**Furman CCC volunteers installing insulation**



The overall vision of the Furman CCC is to promote financial and environmental stability within a safe, quality living environment for all individuals in need. Piedmont's funding has allowed the Furman CCC to continue its program and has helped students get involved in activities where they are able to give back to the community. The CCC started out as a partnership among Furman University's Heller Service Corps, Furman's Community Relations Department, Furman's Shi Center for Sustainability, the City of Greenville, the Greenville County Redevelopment Authority, and the United Way of Greenville County, along with other stakeholders, to provide home weatherization and education services to Greenville residents who qualify for assistance. Originally two AmeriCorps members, supported through the United Way of Greenville and Furman University, administered the program. Through this partnership, Furman students, under the guidance of the AmeriCorps members and weatherization professionals, provided education to homeowners, as well as weatherization services for homes which met the guidelines for qualification. In the fall of 2013, the Furman CCC formed a partnership with the Habitat for Humanity of Greenville County to work jointly to provide low-income weatherization services. Information about the Furman CCC program is shown in Exhibit B.

The Furman CCC spends some of its time developing an outreach strategy to recruit homeowners for the weatherization assistance program. The organization attends neighborhood association meetings that are in low-income areas to share information with residents about the program. The Furman CCC also works with other local agencies to promote the program and information about the program is listed on the Furman website ([www.furman.edu/ccc](http://www.furman.edu/ccc)). The group works with Furman's Marketing and Public Relations department to design door hangers to market the program and also looks at other outreach events in the local community.

The Furman CCC has a strong presence in low-income neighborhoods in the Greenville Community. As with many low-income communities, the quality of housing is usually substandard at best. Some of the clients reside in old mill communities with some homes that were built nearly 100 years ago.

After eligible participants are identified for the program, the Furman CCC has the participant fill out an application form and then it is reviewed to verify the income level and confirm the participant is a Piedmont customer. If the homeowner is qualified for the program, a pre-weatherization meeting is scheduled with the homeowner to go over the process and answer any questions about the program. The Furman CCC then utilizes an experienced energy auditing company to administer the home energy audit and determine what type of energy efficiency improvements can be performed on the home. The energy auditor also identifies any unsafe conditions. After each home is completed, the resident receives information about how to further reduce their energy usage and they are also provided with some energy saving tips. After energy improvement needs are addressed, the Furman CCC primarily works with local energy contractors to complete the work. In some cases, they attempt to incorporate student volunteers to help out with the energy efficiency improvements, but this depends upon the number of volunteers and the availability of scheduling with the homeowner. Over the course of Program Year 4, the Furman CCC utilized 48 volunteers and contracted with 9 different campus groups. Examples of volunteer groups that assisted were the Alpha Phi Omega Service Fraternity, Heller Service Corps, Human Systems Spring Class, and Habitat for Humanity Community Volunteers.



Once the weatherization has been completed, the CCC Program Coordinator returns with the energy auditor for a follow-up audit to verify that weatherization measures were effectively implemented. If there are any areas of the home that were not properly weatherized, the contractor is responsible for returning to the home to ensure that overlooked areas are addressed.

In the Spartanburg/Cherokee area, Piedmont's funding is being used to help leverage existing Federal Weatherization Assistance Program ("Federal WAP") funds that are administered through Piedmont Community Actions. The Weatherization Assistance Program for SC is run through the SC Office of Economic Development. The Weatherization Assistance Program for each of the state's 46 counties is coordinated through community organizations that administer the Federal WAP program in SC. This program is paid through the annual Federal WAP funding. PCA has been administering the Federal WAP in Spartanburg and Cherokee counties for over 20 years.

For Program Year 6, Piedmont plans to continue working with the Furman CCC and is also evaluating what opportunities there might be to work with other organizations that administer a low-income weatherization program.

### **HIGH EFFICIENCY EQUIPMENT REBATE PROGRAM**

This program provides rebates to Piedmont's residential and commercial customers who purchase and install qualifying high efficiency natural gas equipment. The residential rebates apply to high efficiency water and space heating equipment, since water heating and space heating constitute a large portion of residential energy usage. Commercial customers are offered a rebate on the purchase and installation of a high efficiency tankless water heater.

This program enables customers to offset some of the higher cost of choosing a more efficient piece of equipment. This program is intended to help influence a customer to choose a more energy efficient piece of equipment. An upgrade to a higher efficiency water heater or furnace, given consistent usage patterns, will help the program participant achieve recognizable energy savings. The extent of the energy savings will vary for each participant,

depending on a variety of factors including their current energy efficiency. Tables 7 and 8 summarize the equipment rebates that are offered and the corresponding equipment efficiency requirements.

**Table 7 – Residential Equipment Rebate Summary**

	Rebate Amount	Minimum Required Efficiency <sup>A</sup>
Natural Gas Storage Tank Water Heater	\$ 50	EF = 0.62 (or higher)
Natural Gas Tankless Water Heater	\$ 250	EF = 0.82 (or higher)
Natural Gas Forced Air Furnace	\$ 300	AFUE = 90% (or higher)

A) EF is the Energy Factor; AFUE is the Annual Fuel Utilization Efficiency

**Table 8 – Commercial Equipment Rebate Summary**

	Rebate Amount	Minimum Required Efficiency <sup>A</sup>
Natural Gas Tankless Water Heater	\$ 250	EF = 0.82 (or higher)

A) EF is the Energy Factor

The Department of Energy updated the water heater standards effective April 16, 2015 and the new efficiency standards went into place for any new water heating equipment that was manufactured after April 16, 2015. Piedmont intends to keep the current tankless rebate in place because tankless is still a more efficient replacement for the standard gas storage water heaters. Piedmont also has a tiered incentive for tankless installations that have an Energy Factor of 0.92 or higher. For storage water heaters, Piedmont intends to keep the rebate amount of \$50 but revise the natural gas storage water heater rebate efficiency level from an Energy Factor of 0.62 to 0.67. This would be effective for rebates received after January 1, 2016.

This program is available to customers under Piedmont's residential rate schedules (Rate Schedules 201 and 221) and commercial rate schedules (Rate Schedules 202, 232, 252 and 262). Each customer is required to submit a rebate application, along with proof of purchase and installation of the qualifying equipment. Upon approval of the application, the rebate

check is mailed to the customer. In addition, each rebate recipient receives an energy efficiency kit that includes items to help further reduce their natural gas energy usage. The energy efficiency kit includes the following:

- (1) Low-flow showerhead
- (1) Low-flow kitchen aerator
- (2) Low-flow faucet aerators
- (2) Weatherstripping rolls
- Thank you letter, energy conservation tips, water saving tips

Piedmont has received positive program feedback from our customers, as well as from the contractors who have used the Equipment Rebate program to encourage the purchase of high-efficiency natural gas equipment. Below is feedback from a customer after they received their free energy efficiency kit in the mail:

- *“Thanks for sending us the energy saving box of supplies. We especially like the "Earth" shower head and would love to get another one for our second bathroom. Could you please let me know where I can purchase one? We love Piedmont Natural Gas!”*

To ensure compliance with its eligibility criteria, Piedmont verifies that each rebate applicant is indeed a Piedmont customer and confirms that the installed equipment model meets all the program equipment efficiency criteria. For Program Year 5, there were 705 eligible customer rebate applications processed and those customer applications were received from 22 different SC cities. Based on reviewing the eligibility of the rebate applications, an additional 18 customer rebate applications were determined to be ineligible. For each ineligible application, a letter was mailed to the applicant with an explanation of why the rebate application was deemed ineligible. Examples of why a customer might be deemed ineligible include:

- Equipment installed didn’t meet rebate equipment high-efficiency levels
- Submitted form was from homeowner who wasn’t a Piedmont Natural Gas customer
- Equipment installed was for new construction instead of gas-to-gas replacement

Table 9 shows the number of approved rebate applications, by customer sector:

**Table 9 – Number of Approved Rebate Applications in Program Year 5**

Residential Rebate Applications	704
Commercial Rebate Applications	1
<b>TOTAL</b>	<b>705</b>

The number of customers participating in the Rebate Program has been more consistent over the past couple years compared to the spikes and increased activity of rebate applications in Programs Years 1 and 2 when there were additional incentive options available (i.e. Federal Tax Credit) that also influenced a customer's decision to purchase high-efficiency natural gas equipment. The graphs in Exhibit C show the monthly rebate applications received for Program Years 1 through 5 and also the monthly rebate applications received since the start of the program.

Table 10 shows the equipment installation count associated with the Program Year 5 rebate funds. Because some customers installed multiple pieces of equipment at their service address, the number of equipment installations exceeds the number of approved rebate applications.

**Table 10 – Equipment Installed per Approved Rebate Applications in Program Year 5**

	<b>Storage Water Heater (EF = 0.62 or higher)</b>	<b>Tankless Water Heater (EF = 0.82 or higher)</b>	<b>Forced Air Furnace (AFUE = 90% or higher)</b>	<b>TOTAL</b>
Residential Equipment Installed	7	114	627	<b>748</b>
Commercial Equipment Installed	N/A	3	N/A	<b>3</b>
<b>Total</b>	<b>7</b>	<b>117</b>	<b>627</b>	<b>751</b>

Table 11 shows the Equipment Rebate program expenditures for Program Year 5.

**Table 11 – Equipment Rebate Program Expenditures in Program Year 5**

	<b>Budgeted Annual Costs</b>	<b>Expenditures<sup>A</sup></b>
Program Development and Administration	\$10,000	\$4,459

Communications	\$11,000	\$10,657
Rebate Incentives	\$195,000	\$219,450 <sup>B</sup>
Evaluation, Measurement & Verification	\$4,000	\$2,370
<b>TOTAL</b>	<b>\$220,000</b>	<b>\$ 236,936</b>

A) Represents program expenses recorded between April 1, 2014 and the end of accounting month March 2015

B) Includes \$16,936 of reallocated funding from the Low-Income program

For the Program Year 1 analysis, Piedmont worked with an energy consultant to determine the achieved energy savings for the residential participants. Based on funding limitations, Piedmont is using the same achieved energy saving values for Program Year 5. Since there were not enough commercial installations to perform an accurate statistical analysis of the achieved energy savings, the initial deemed savings value is being used as a proxy for the achieved energy savings. For the residential analysis, the consultant reviewed Piedmont's initial deemed savings and performed a billing analysis of the customers' installed equipment. The consultant used a per-heating-degree-day modeling approach since there were limited numbers of 12-months post data due to the timing of the analysis. Table 12 shows the savings per residential customer that is being used for the Program Year 5 analysis.

**Table 12 – Deemed and Billing Analysis Gross Savings per Residential Customer**

<b>Measure</b>	<b>Original Deemed Annual Savings<sup>A</sup> (Therms)</b>	<b>Billing Analysis Annual Savings<sup>B</sup> (Therms)</b>
Residential Storage Water Heaters (EF=0.62 or higher)	12.6	12.6 <sup>C</sup>
Residential Tankless Water Heaters (EF=0.82 or higher)	72.9	43
Residential Furnace (AFUE = 90% or higher)	81	110

A) Deemed Savings is the measure-level savings values as utilized in Piedmont's original program planning analysis. Deemed savings were determined by estimating the energy savings based on a baseline efficiency for each piece of equipment.

B) Billing Analysis is the measure-level savings values estimated by the energy consultant. This analysis looked at the customer's energy consumption, average heating degree days, and the average daily energy savings. This complex model used a weighted approach to

compensate for any missing pre and post-installation consumption data.

C) Due to the low number of installed storage water heaters, there was not enough data to analyze the storage water heater energy savings; the initial deemed savings value was used as a proxy for the achieved annual savings.

Table 13 represents the annual energy saving comparisons based on the initial deemed energy savings and the achieved energy savings. The total deemed annual savings shown is based on the original estimated number of participants and the original deemed savings values, including both the residential and commercial customers. The total annual savings is based on the actual number of installations shown in Table 9 and the savings based on the billing analysis, including both the residential and commercial customers.

**Table 13 – Total Program Annual Energy Savings**

<b>Measure</b>	<b>Original Deemed Total Annual Savings (Therms)</b>	<b>Total Achieved Annual Savings per Billing Analysis (Therms)</b>
Storage Water Heaters (EF=0.62 or higher)	315	88
Tankless Water Heaters <sup>A</sup> (EF=0.82 or higher)	13,231	5,419
Furnace (AFUE = 90% or higher)	13,300	68,970
<b>Sub-Total</b>	<b>26,846</b>	<b>74,477</b>
Weatherization Kits Mailed Out <sup>B</sup> (Residential Only)	12,390	6,230
<b>TOTAL</b>	<b>39,236</b>	<b>80,707</b>

A) Includes both residential and commercial installations.

B) For the achieved annual savings, assuming 50% installed and achieved savings of 50% of deemed savings.

The total dollar savings and average savings per customer were calculated using the achieved energy savings, the number of equipment rebates issued, and the average SC rates during Program Year 5. There were not enough commercial installations to get an accurate analysis so the original commercial deemed savings were utilized. This is shown in Table 14.

**Table 14 – Total Rebate Program Annual Dollar Savings<sup>A</sup>**

	<b>Average Annual Dollar Savings per Customer</b>	<b>Total Annual Dollar Savings</b>
Residential	\$ 99.64	\$ 70,143.49
Commercial	\$ 410.37	\$ 410.37
<b>TOTAL</b>	<b>\$ 100.08<sup>B</sup></b>	<b>\$ 70,553.86</b>

A) The dollar savings were calculated by using the average SC residential/commercial rates for Program Year 5. This is based on the weighted average of the actual number of customers per rate class.

B) Average total annual dollar savings per customer based on the total annual dollar savings divided by the total number of residential and commercial customers.

Piedmont worked with an energy consultant to determine the cost-effectiveness testing and the consultant analyzed the data based on the number of equipment rebates issued in Program Year 5 and the analyzed energy savings per measure.

The energy consultant used the tests as defined by the California Standard Practice Manual to evaluate the cost-effectiveness of this program. This analysis of program costs and benefits included the following:

- **Total Resource Cost Test (TRC):** This test examined the program benefits and costs from the perspectives of Piedmont and its customers. Benefits included fuel cost reductions, and costs included those incurred by Piedmont and the program participants.
- **Utility Cost Test (UCT):** This test examined the program benefits and costs from Piedmont's perspective. Benefits are in the form of reduced fuel costs while costs included any incurred administrative, measure, or incentives costs. This test is also commonly referred to as the Program Administrator Cost Test.

- Participant Cost Test (PCT): This test examined the benefits from a program participant perspective. Costs included any measure costs incurred by the participants. Benefits included rebates paid by Piedmont and bill reductions due to implementing the efficiency measures.

The energy consultant evaluated the cost-effectiveness testing at a program level for the Equipment Rebate program and the results were calculated by analyzing the planning avoided gas costs and also the program year avoided gas costs. For the main tests, the TRC and the UCT, the results were greater than 1.0 which signifies that the program is considered cost-effective. The achieved energy analysis savings are shown as a ratio of the program benefits to program costs. The results are shown in Table 15.

**Table 15 – Equipment Rebate Program Cost-Effectiveness Results for Program Year 5**

<b>Test</b>	<b>Achieved Energy Analysis Savings (Planning Avoided Costs)</b>	<b>Achieved Energy Analysis Savings (Program Year Avoided Costs)</b>
Total Resource Test (TRC)	2.26	1.46
Utility Cost Test (UCT)	3.21	2.04
Participant Cost Test (PCT)	1.94	1.94



# **EXHIBIT A**

## **BILL INSERT**



- ✓ Have your heating system inspected each year by a qualified professional to ensure it is working properly  
*Haga que un profesional calificado inspeccione su sistema de calefacción todos los años para asegurar que esté funcionando apropiadamente*
- ✓ Change or clean your furnace filters each month during the heating season  
*Cambie o limpie los filtros de las calderas todos los meses durante la temporada de uso de calefacción*
- ✓ Upgrade your old furnace to a new high-efficiency model (Newer models can be up to 98% efficient!)  
*Cambie su vieja caldera por un nuevo modelo de alta eficiencia (¡Los modelos más recientes pueden tener una eficiencia de hasta el 98%!).*
- ✓ Install a programmable thermostat to maximize your energy savings  
*Instale un termostato programable para maximizar sus ahorros de energía*
- ✓ Seal leaks around doors and windows with caulk or weather-stripping to reduce unwanted drafts  
*Selle los espacios alrededor de las puertas y ventanas con masilla o cinta espuma para reducir las corrientes de aire no deseadas*

For more helpful information about saving energy please visit us at [piedmontng.com](http://piedmontng.com)  
or you can also check out: [energysavers.gov](http://energysavers.gov).

Para obtener más información útil sobre cómo ahorrar energía visítenos  
en [piedmontng.com](http://piedmontng.com) o también puede dar un vistazo a: [energysavers.gov](http://energysavers.gov).



[piedmontng.com](http://piedmontng.com)  
1.800.752.7504  
 

1.2015  
PNG77i

## NEWSPAPER AD

# GET READY TO SAVE ENERGY

during the  
winter months

- ✓ Have your heating system inspected each year by a qualified professional to ensure it is working properly
- ✓ Change or clean your furnace filters each month during the heating season
- ✓ Upgrade your old furnace to a new high-efficiency model (Newer models can be up to 98% efficient!)
- ✓ Install a programmable thermostat to maximize your energy savings
- ✓ Seal leaks around doors and windows with caulk or weather-stripping to reduce unwanted drafts

For more helpful information about saving energy please visit us at [piedmontng.com](http://piedmontng.com) or you can also check out: [energysavers.gov](http://energysavers.gov).



**Piedmont  
Natural Gas**

Energy that shows.®



Learn more at [piedmontng.com](http://piedmontng.com)  
or give us a call at 1.800.752.7504.

12.2014

## MAGAZINE AD

# GET READY TO SAVE ENERGY

during the winter months

- ✓ Have your heating system inspected each year by a qualified professional to ensure it is working properly
- ✓ Change or clean your furnace filters each month during the heating season
- ✓ Upgrade your old furnace to a new high-efficiency model (Newer models can be up to 98% efficient!)
- ✓ Install a programmable thermostat to maximize your energy savings
- ✓ Seal leaks around doors and windows with caulk or weather-stripping to reduce unwanted drafts

For more helpful information about saving energy please visit us at [piedmontng.com](http://piedmontng.com) or you can also check out: [energysavers.gov](http://energysavers.gov).



Learn more at [piedmontng.com](http://piedmontng.com)  
or give us a call at 1.800.752.7504.



## NEWSPAPER AD



### IS YOUR HOME COZY?

Keep your home cozy this winter by checking windows, attics and crawl spaces for areas that can cause unwanted drafts. This could help decrease your monthly bill and prevent cool air from entering and warm air from escaping your home.

#### QUICK FIXES TO SAVE YOU MONEY & ENERGY



Open draperies and blinds on sunny days to maximize the sun's warmth. Close them at night to help insulate against the cold air outside.

Use your ceiling fan in the clockwise direction to help disperse warm air that rises and collects near the ceiling.

Use our Energy Saving Tools to analyze your home's energy usage.

Visit [piedmontng.com/energysavingtools](http://piedmontng.com/energysavingtools) for more information.



**Piedmont  
Natural Gas**  
Energy that shows.®

[piedmontng.com](http://piedmontng.com)  
1.800.752.7504





## NEWSPAPER AD

### IS YOUR HOME COZY?

Keep your home cozy this winter by checking windows, attics and crawl spaces for areas that can cause unwanted drafts. This could help decrease your monthly bill and prevent cool air from entering and warm air from escaping your home.

#### QUICK FIXES TO SAVE YOU MONEY & ENERGY



Open draperies and blinds on sunny days to maximize the sun's warmth. Close them at night to help insulate against the cold air outside.

Use your ceiling fan in the clockwise direction to help disperse warm air that rises and collects near the ceiling.

Use our Energy Saving Tools to analyze your home's energy usage.

Visit [piedmontng.com/energysavingtools](http://piedmontng.com/energysavingtools) for more information.



**Piedmont  
Natural Gas**  
Energy that shows.®

[piedmontng.com](http://piedmontng.com)  
1.800.752.7504



# **EXHIBIT B**



The Community Conservation Corps provides free home weatherization to low income homeowners in the greater Greenville community. Funded by grants from Piedmont Natural Gas, we partner with Habitat for Humanity of Greenville County to promote efficient, safe building and homeowner education. The mission of the Community Conservation Corps (CCC) is to reduce energy consumption and the financial stability of homeowners through weatherization, energy conservation, and education.

The CCC strives to provide our clients with significant monetary savings on their home energy bills through free home weatherization and to educate the community about the importance and advantages of energy conservation. To ensure a positive and professional experience for our clients, the CCC hires experienced, certified home energy auditors to determine each home's needs. Expert contractors then perform all necessary services and provide all clients with the most relevant information for their household.

The CCC partners with BPI (Building Performance Institute) certified contractors and auditors to provide all necessary adjustments and home repairs, completely free of charge. Some of our services include new or additional insulation around water heaters and in crawlspaces, weather stripping, air-sealing, crawl space vapor barriers, safety checks on combustion appliances, and more. We believe that by providing these and other home weatherization services, we can help our clients save up to 35% on their home energy bills.

### How to apply

Submit your home for a free home weatherization! We want to help as much of Greenville as possible by saving your money and our environment.

**See if you qualify, and learn how to apply.**

### Additional Resources

Not eligible for our program? No worries; there's plenty you can do yourself! Click on the link below to learn about many different ways to improve your home and to find tips and tricks you can use in your own home. All of the resources on the following page have helped us improve our homes and they can save you lots of time and money as well.

[Click Here for more Energy Efficiency Resources.](#)

### Volunteer with us

Thank you for your interest in serving the Greenville Community! By volunteering with the CCC, you can become a vital part of helping homeowners conserve energy and save money. There are a number of ways individuals can volunteer with the CCC, ranging from supervised basic construction and weatherization to event planning and outreach. You do not have to be a Furman student to volunteer. Download our **Adult** and **Minor** waivers [here](#).

### Contact us

If you want to learn more about the Community Conservation Corps or just learn more about the many benefits of greener living, reach out and touch with us today:

**Rebecca McDaniel**

Community Conservation Corps Program Coordinator





Here in the Greenville Community we have access to great weatherization resources at both the local and national levels. Whether you have already been weatherized and want to learn more about home weatherization, were unable to qualify for our program and wish to look elsewhere, or are a volunteer and want to know more about the work you contribute to, the resources below are sure to help. You will find both local partner agencies and national resources that we find helpful in our work.

Energy Efficiency	Weatherization	Solar Resources	Local Resources
Large national sites containing information about national measures of energy efficiency  <a href="#">South Carolina Energy Office</a>  <a href="#">US DOE Energy Efficiency and Renewable Energy</a>	General resources, links to some projects, and ideas for your own home weatherization  <a href="#">US Green Building Council, SC Chapter</a>  <a href="#">Home Power Magazine</a>  <a href="#">Building Green</a>  <a href="#">Weatherization Assistance Program</a> <a href="#">South Carolina Weatherization Assistance</a>  <a href="#">Roof Savings Calculator</a>  <a href="#">Roscoe Brown</a>	Resources and advisement on investing in solar panels in the upstate  <a href="#">US Solar Radiation Maps</a>  <a href="#">Find Solar</a>  <a href="#">Interstate Renewable Energy Council</a>  <a href="#">South Carolina Solar Council</a>  <a href="#">American Solar Energy Society</a>  <a href="#">Build it Solar</a>  <a href="#">Clean Energy States Alliance Solar Financing Guide (pdf)</a>	Organizations in the Greenville area involved in home weatherizations and related projects  <a href="#">Habitat for Humanity of SC</a>  <a href="#">Central Electric Power</a>  <a href="#">Upstate Forever</a>  <a href="#">Greenville County Redevelopment Authority</a>  <a href="#">Piedmont Natural Gas</a>  <a href="#">Duke Energy</a>



Owning a home can be challenging. Paying for energy bills, mortgages, and physical maintenance can leave homeowners in a difficult financial situation. That's why the Community Conservation Corps provides a free, preventive service to decrease energy bills and make homes safer. Each home is thoroughly checked by an auditor using highly accurate tools in order to quickly identify what it may need. A construction crew assisted by volunteers from Furman and Habitat for Humanity of Greenville County performs the weatherization.

In order to receive weatherization assistance, residents must:

- Live in and own their home
- Reside in Greenville, Spartanburg, Anderson, or Cherokee County
- Have homeowner's insurance
- Be a Piedmont Natural Gas customer
- Have family income at or below the following amounts:

Number in Household	Annual Income
1	\$24,400
2	\$27,900
3	\$31,400
4	\$34,800
5	\$37,600
6	\$40,400
7	\$43,200
8	\$46,000

Apply now for help with your home. To apply please provide:

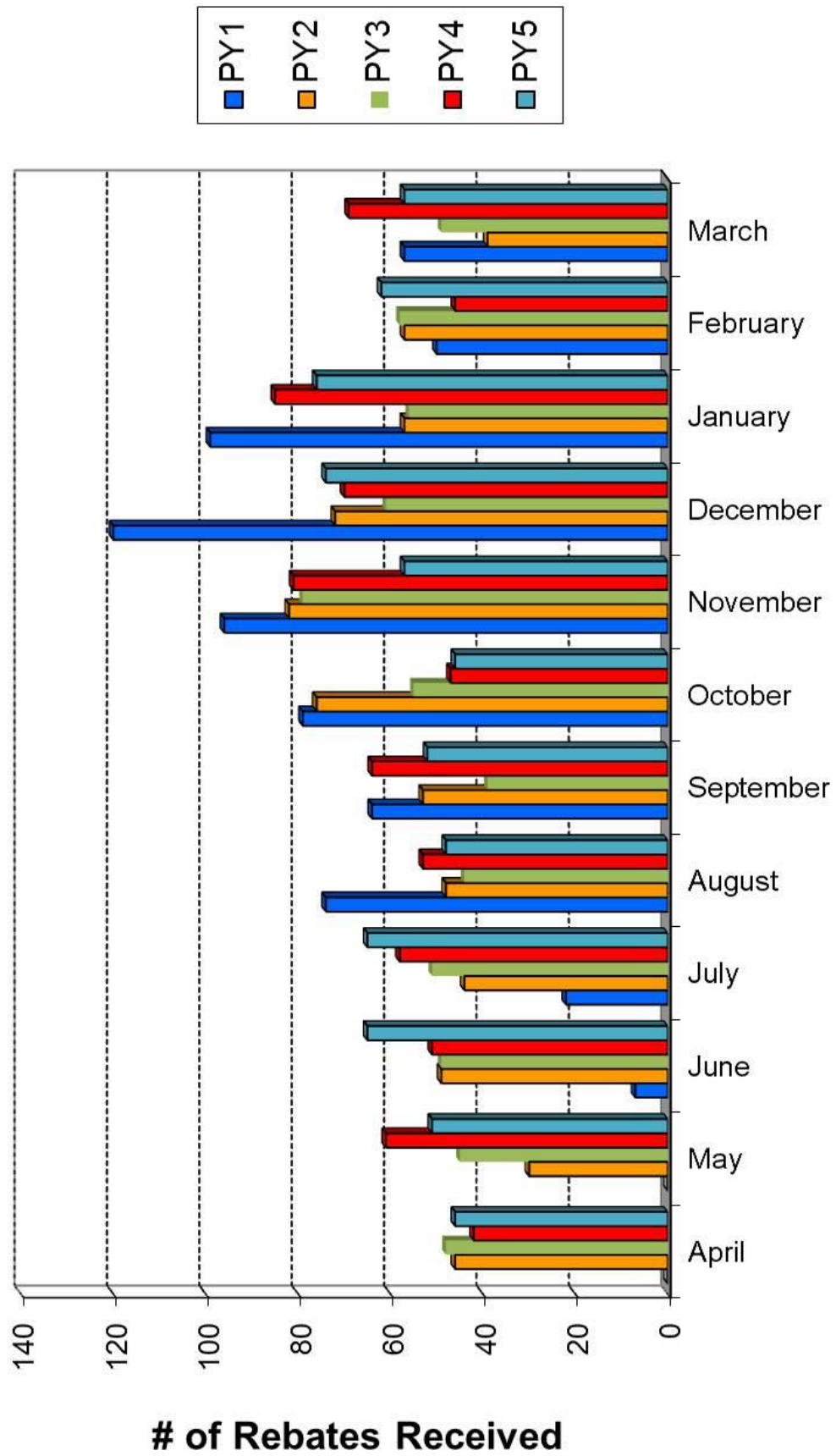
- Completed **Weatherization Application**
- Completed **PNG disclosure form** (Only for Piedmont Natural Gas Customers)
- Proof of income
- Proof of homeowner's insurance
- 1 year of electric and gas bills

Please mail these items to the following address below:

# **EXHIBIT C**

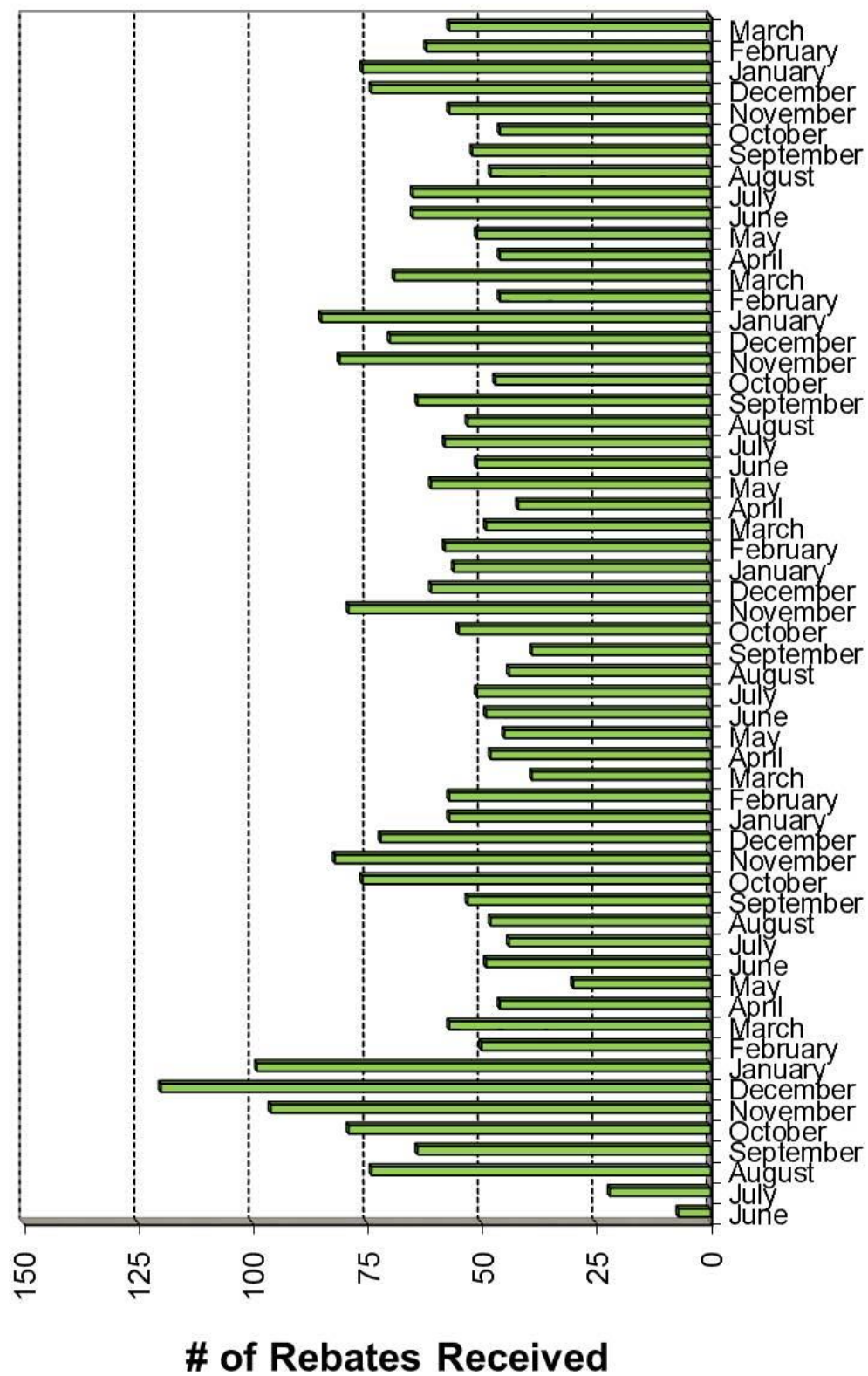
# Monthly Rebate Applications

Program Years 1 - 5



# Rebate Applications From Start of Program

Program Years 1 - 5





## CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the attached *Energy Efficiency Program Report* is being served this date via email and UPS Overnight upon:

Jeffrey M. Nelson  
Shannon B. Hudson  
Office of Regulatory Staff  
1401 Main Street  
Suite 900  
Columbia, South Carolina 29201  
jnelson@regstaff.sc.gov  
shudson@regstaff.sc.gov

And that a copy of the attached *Energy Efficiency Program Report* is being served this date via email or U.S. Mail upon:

David Carpenter  
Vice President  
Planning and Regulatory Affairs  
Piedmont Natural Gas Company, Inc.  
P.O. Box 33068  
Charlotte, North Carolina 28233  
david.carpenter@piedmontng.com

Pia Powers  
Director - Regulatory Affairs  
Piedmont Natural Gas Company, Inc.  
P.O. Box 33068  
Charlotte, North Carolina 28233  
pia.powers@piedmontng.com

and

Thomas C. Tinsley  
384 Old Greenville Highway  
Spartanburg, SC 29301-5241

This the 15th day of June, 2015.

/s/ James H. Jeffries IV  
James H. Jeffries IV